In the Claims:

1. (original) An apparatus for producing water on board of an aircraft while using one or more fuel cells, wherein a partial or complete integration of a water production unit in the form of one or more high temperature fuel cells (7) into an aircraft engine is provided in such a manner that the combustion chambers (7A) of the aircraft engine are replaced completely or partially by the high temperature fuel cells (7) and thus either supplementing or completely replacing the process that takes place in the conventional type combustion chambers, characterized in that the high temperature fuel cells (7) are constructed as type: oxide ceramic fuel cell (SOFC - solid oxide fuel cell) or as a molten carbonate fuel cell (MCFC), or a type that is comparable in power and temperature level; that pure hydrogen is supplied to the anode side of said high temperature fuel cells (7), that air is supplied to the cathode side of said high temperature fuel cells, that a mixture of hydrogen and air is supplied to the combustion chambers (7A), that at least the hydrogen supply is constructed for a closed loop control or can be shut off completely, and that a single stage or multistage turbine (16) is connected downstream of the anode side of the high temperature fuel cell, said turbine converting the thermal energy of the anode exhaust gas (35) into rotation energy.

2. (original) The apparatus of claim 1, characterized in that the conversion of the thermal energy takes place by a Stirling motor and/or by one or more combinations of different thermal engines, for example a turbine and a Stirling motor.

Claims **3 to 24** (canceled).

25. (new) The apparatus of claim 1, comprising a compressor (13) and means for supplying gained mechanical energy to said compressor.

26. (new) The apparatus of claim 25, wherein said compressor is used for charging said anode side of said high temperature fuel cell (7) with hydrogen (15) under pressure.

27. (new) The apparatus of claim 1, further comprising a condensation process (18) connected downstream of said high temperature fuel cell or high temperature fuel cells (7), said condensation process condensing water out of a portion of anode exhaust gas (35) of said fuel cell (7).

28. (new) The apparatus of claim 1, wherein said high temperature fuel cells (7) are constructed for pressurizing the air or oxygen side, and the fuel or hydrogen side, whereby equal or different pressures are permissible on the anode side and on the cathode side.

29. (new) The apparatus of claim 1, comprising a source (1) for supplying liquid or gaseous hydrogen.

30. (new) The apparatus of claim 29, further comprising a liquid hydrogen evaporator (17) positioned upstream of said high temperature fuel cells (7) or said combustion chambers (7A).

31. (new) The apparatus of claim 30, further comprising an anode exhausat gas condenser (18) and wherein said evaporator (17) is constructed to be operable by process heat of said anode exhaust gas condenser (18).

32. (new) The apparatus of claim 31, wherein said evaporator (17) is constructed as a pipe bundle heat exchanger which is arranged as a ring shape around said condenser (18) or circularly within said condenser (18).

33. (new) The apparatus of claim 31, wherein at least a portion of said condenser (18) is operable with cooling air (19).

34. (new) The apparatus of claim 1, further comprising a container (32) for collecting used water and not needed condensate as gray water.

35. (new) The apparatus of claim 1, further comprising a gray water evaporator (33) wherein air (20) heated in a condensation process is used for evaporating gray water, a

pump (37) for feeding gray water into said evaporator (33), and a filter provided for retaining solid and suspended matter out of said gray water.

36. (new) The apparatus of claim 1, wherein produced steam is blown in upstream of a second turbine stage (9) of said multistage turbine where said steam is mixed with cathode exhaust air.

37. (new) The apparatus of claim 1, wherein any germs and microorganisms present in gray water (32) are thermally killed.

38. (new) The apparatus of claim 1, further comprising means for withdrawing water of distilled quality from a condensation process (18) and for distributing said distilled quality water, a salination station (23) for adding a dose of salt to produce drinking water for galleys, hand wash basins and showers and for supplying distilled water to toilets and humidifiers.

39. (new) The apparatus of claim 1, wherein said multistage turbine comprises turbine stages (8, 9) for driving compressor stages (5, 6) and a fan (11), and wherein compressor stages (5, 6) pressurize an air side of said high temperature fuel cells (7) and of said combustion chambers (7A).

40. (new) The apparatus of claim 39, wherein an air throughput (3) of said fan (11) is used either in an engine for propulsion or in an APU for pressurization of pressurized air systems and/or of an air conditioning system.

41. (new) The apparatus of claim 39, wherein said fan (11) is coupled with a first compressor stage (6) and with the second turbine stage (9), and wherein a second compressor stage (6) and the first turbine stage (8) are coupled with each other and run on coaxial shafts with different revolutions per minutes.

42. (new) The apparatus of claim 41, wherein the number of coupled compressor stages and turbine stages, the direction of rotation of these stages, and the number of coaxial shafts rotating one within the other are constructed at discretion.

43. (new) The apparatus of claim 1, further comprising a waste water collection tank (28) for collecting waste water and wherein said waste water is completely or partially dehydrated at (30) and the thus gained water portion is fed into a gray water collection tank (32).

44. (new) The apparatus of claim 1, constructed for being operable without supplying water to a water system.

45. (new) The apparatus of claim 1, wherein said combustion chambers and said high temperature fuel cells are operable separately and in any desired combination.

46. (new) The apparatus of claim 1, wherein individual combustion chambers or high temperature fuel cells are adapted to be switched off for a separate operation of combustion chambers or high temperature fuel cells.

[REMARKS FOLLOW ON NEXT PAGE]